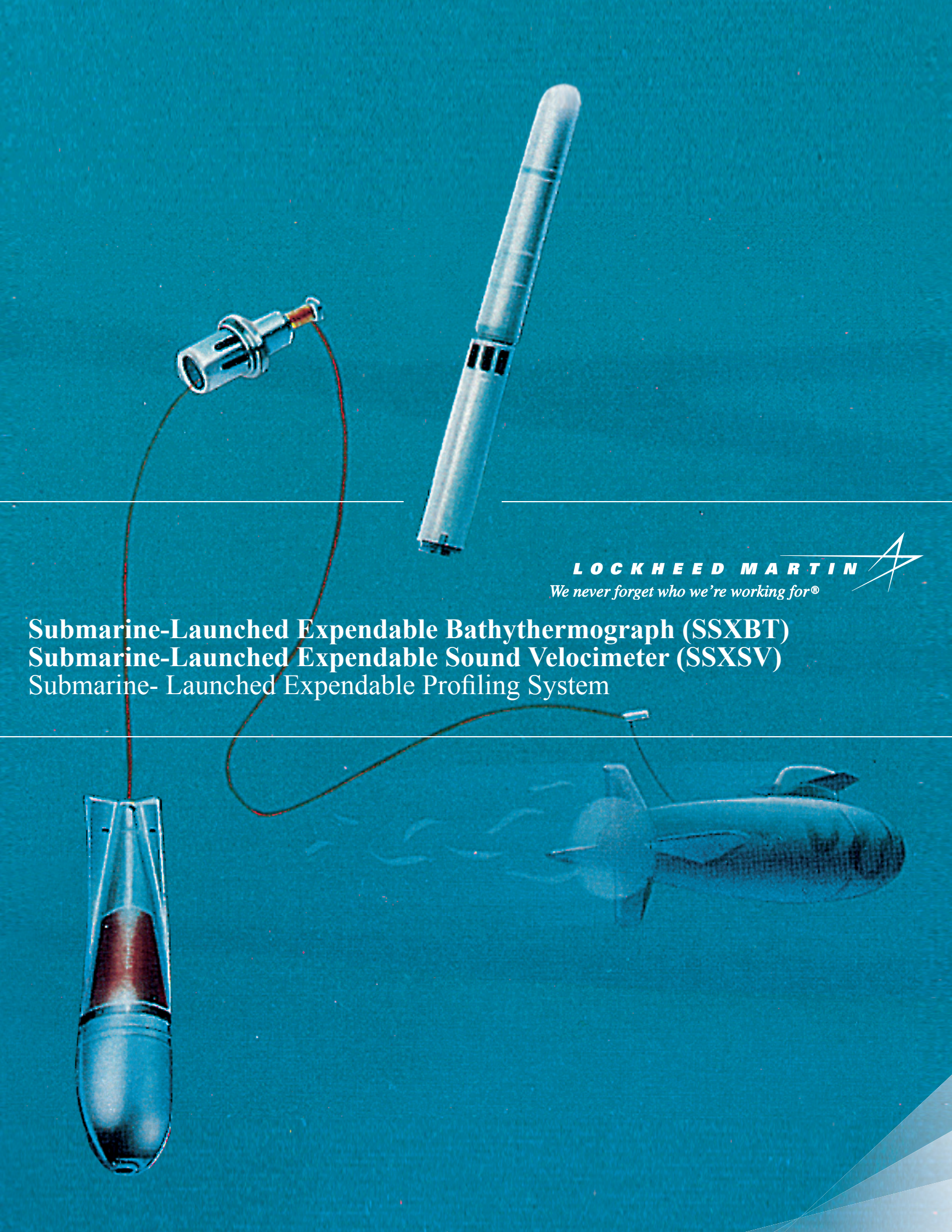
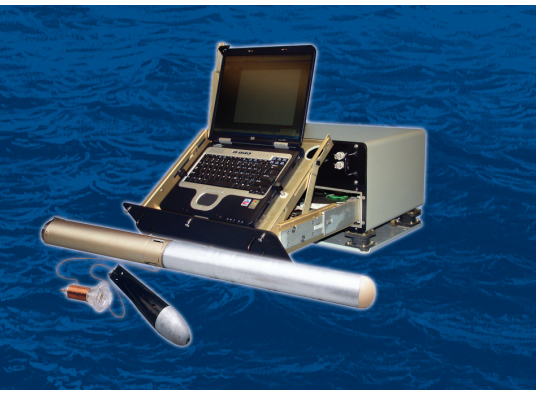


LOCKHEED MARTIN

We never forget who we're working for®

Submarine-Launched Expendable Bathythermograph (SSXBT)
Submarine-Launched Expendable Sound Velocimeter (SSXSV)
Submarine- Launched Expendable Profiling System

Submarine-Launched Expendable Bathythermograph (SSXBT)
Submarine-Launched Expendable Sound Velocimeter (SSXSV)



Submarines under the sea operate in a three dimensional world. Knowledge of the environment is extremely important for offensive operations as sensor efficiency is directly related to underwater sound propagation. These same requirements exist for defensive tactics — survival may depend on choosing the best operating depth to hide from surface and air ASW forces. Lockheed Martin has designed and built complete submarine environmental measuring systems for the U.S. and international navies for over 25 years. These systems allow submarines to profile temperature or sound velocity from the surface to 850 meters without having to change depth. With this information, the submarine commander can compute ray path propagation for his own sensors and those of his adversary.

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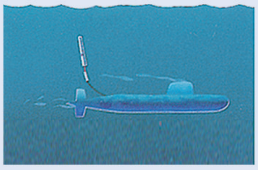
Submarine-launched expendable profiling system.

Recorder/Processor

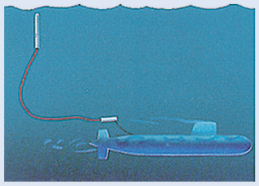
The AN/BQH-7/7A (EC) and MK8-F (export version) recorders/processors are PC-based systems operating in the Windows environment. The recorders collect and process the data and display it in real time on an active matrix LCD. The data is stored on hard disk and can be output via the I/O communication port (RS-232 or RS-422) to an external combat system or workstation. The AN/BQH-7/7A and MK8-F are compatible with all Lockheed Martin probes and launchers. The AN/BQH-7/7A and MK8-F Submarine Systems are compatible with submarine three-inch signal ejectors and the Lockheed Martin Submarine connector box.

Sequence of Operations

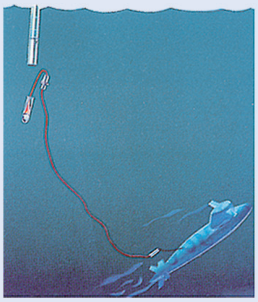
- The SSXBT is launched from the signal ejector of a submarine and begins to ascend.



- The float separates from the lifting body and continues to ascend.



- When the float reaches the surface, the probe and intermediate spool deploy and the float immediately scuttles. The probe starts to transmit temperature or sound velocity data back to the shipboard recorder/processor.



Connector Box

This unit provides the electrical connection between the SSXBT and the recorder. It also includes status indicator lamps to inform the operator of the recorder operating status.

Signal Ejector

This unit launches the SSXBT from the submarine. The SSXBT/SSXSV is compatible with any submarine signal ejector capable of launching three-inch diameter devices.

Breech Door/Cable Feed-Through Assembly

This unit, developed and manufactured by Lockheed Martin, provides the inner door for the signal ejector. It allows the tether wire to pass through the door and provides a seal around the wire. At the end of probe deployment, a guillotine in the assembly cuts the tether wire allowing the SSXBT components to clear the submarine and scuttle.

Expendable Probe

The SSXBT Expendable Bathythermograph probe senses the water temperature profile from the ocean surface to a depth of 760 meters and transmits it to the moving, submerged submarine. The SSXSV Expendable Sound Velocimeter probe provides a profile of measured sound velocity to a depth of 850 meters. All Lockheed Martin submarine launched probes are also available in under-ice configurations.

System Performance

	Temperature (SSXBT)	Sound Velocity (SSXSV)
Range	-2.2°C to 35.6°C	1405 m/s to 1560 m/s
Accuracy	±0.15°C	±0.25 m/s
Depth Range	0 - 760 m	0 - 850 m
Depth Accuracy	±2%	±2%
Size	97.6 x 7.6 cm	97.6 x 7.6 cm